

Index	Modified Warmwater Habitat				
Sampling Site Ecoregion ¹	Channel Modif.	Mine Affected	Impounded	Warmwater Habitat	Exceptional Warmwater Habitat

Oklahoma

*** Does not apply to sites with drainage areas less than twenty square miles.

SOURCE: Oklahoma Administrative Code, Title 785, Oklahoma Water Resources Board Rules, Chapter 45 Oklahoma Water Quality Standards, August 13, 2001:
<http://www.oklaosf.state.ok.us/~owrb/rules/Chap45.pdf>,
<http://www.oklaosf.state.ok.us/~owrb/rules/Chap46.pdf> and www.state.ok.us/~owrb

785:45-1-2. Definitions

"Benthic macroinvertebrates" means invertebrate animals that are large enough to be seen by the unaided eye, can be retained by a U. S. Standard No. 30 sieve, and live at least part of their life cycles within or upon available substrate in a body of water or water transport system.

"Intolerant climax fish community" means habitat and water quality adequate to support game fishes or other sensitive species introduced or native to the biotic province or ecological region, which require specific or narrow ranges of high quality environmental conditions.

"Sensitive representative species" means *Ceriodaphnia dubia*, *Daphnia magna*, *Daphnia pulex*, *Pimphales promelas* (Fathead minnow), *Lepomis macrochirus* (Bluegill sunfish), or other sensitive organisms indigenous to a particular waterbody.

"Warm Water Aquatic Community" means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support intolerant climax fish communities and includes an environment suitable for the full range of warm water benthos.

"Water quality" means physical, chemical, and biological characteristics of water which determine diversity, stability, and productivity of the climax biotic community or affect human health.

785:45-5-12. Fish and wildlife propagation

(b) Habitat Limited Aquatic Community subcategory.

(1) Habitat limited aquatic community means a subcategory of the beneficial use "Fish and Wildlife Propagation" where the water chemistry and habitat are not adequate to support a "Warm Water Aquatic Community" because:

- (A) Naturally occurring water chemistry prevents the attainment of the use; or
- (B) Naturally occurring ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of a sufficient volume of effluent to enable uses to be met; or
- (C) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- (D) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- (E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of the "Warm Water Aquatic Community" beneficial use.

(2) Habitat Limited Aquatic Community may also be designated where controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended, which would be necessary to meet standards or criteria associated with the beneficial use subcategories of Cool Water Aquatic Community or Warm Water Aquatic Community, would result in substantial and widespread economic and social impact.

(c) Warm Water Aquatic Community subcategory. Warm Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support climax fish communities.

(d) Cool Water Aquatic Community subcategory. Cool Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support cool water climax fish communities and includes an environment suitable for the full range of cool water benthos. Typical species may include smallmouth bass, certain

darters and stoneflies.

- (e) Trout Fishery subcategory. Trout Fishery (Put and Take) means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support a seasonal put and take trout fishery. Typical species may include trout.
- (f) Criteria used in protection of fish and wildlife propagation. The narrative and numerical criteria to maintain and protect the use of "Fish and Wildlife Propagation" and its subcategories shall include...
 - (5) Biological Criteria.
 - (A) Aquatic life in all waterbodies designated Fish and Wildlife Propagation (excluding waters designated "Trout, put-and-take") shall not exhibit degraded conditions as indicated by one or both of the following:
 - (i) comparative regional reference data from a station of reasonably similar watershed size or flow, habitat type and Fish and Wildlife beneficial use subcategory designation or
 - (ii) by comparison with historical data from the waterbody being evaluated.
 - (B) Compliance with the requirements of 785:45-5-12(f)(5) shall be based upon measures including, but not limited to, diversity, similarity, community structure, species tolerance, trophic structure, dominant species, indices of biotic integrity (IBI's), indices of well being (IWB's), or other measures.

785:46-15-5. Assessment of Fish and Wildlife Propagation support

- (e) **Biological criteria.**
 - (1) If data demonstrate that an assemblage of fish or macro invertebrates from a waterbody is significantly degraded, according to 785:45-5-12(f)(5), from that expected for the subcategory of Fish and Wildlife Propagation designated in OAC 785:45 for that waterbody, then that subcategory may be deemed by the appropriate state environmental agency to be not supported.
 - (2) All physical assessments and biological collections shall be performed in accordance with the requirements set forth in OWRB Technical Report No. 99-3 entitled "Standard Operating Procedures for Stream Assessments and Biological Collections Related to Biological Criteria in Oklahoma".
 - (3) Evaluation of the biological collections shall include identification of fish samples to species level.
 - (4) The determination of whether the use of Fish and Wildlife Propagation is supported in wadeable streams in Oklahoma ecoregions shall be made according to all of the requirements of this subsection (e), the application of Appendix C of this Chapter, and the special provisions in subsections (g) through (i), where applicable, of this Section. Streams with undetermined use support status shall be subject to additional investigation that considers stream order, habitat factors and local reference streams before the use support determination is made.
- (f) **Turbidity.** The criteria for turbidity stated in 785:45-5-12(f)(7) shall constitute the screening levels for turbidity. The tests for use support shall follow the default protocol in 785:46-15-4(b).
- (g) **Special provisions for Ouachita Mountains wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Ouachita Mountains ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:
 - (1) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 24 or less. If a score is 25 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
 - (2) Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 27 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 18 or less. If a score is 19 to 26 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
- (h) **Special provisions for Arkansas Valley wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Arkansas Valley ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:

(1) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 24 or less. If a score is 25 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(2) Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 27 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 18 or less. If a score is 19 to 26 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

- (i) **Special provisions for Boston Mountains and Ozark Highlands wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Boston Mountains and Ozark Highlands ecoregions shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:

(1) Where designated, the subcategory of Cool Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 37 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 29 or less. If a score is 30 to 36 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(2) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 31 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 22 or less. If a score is 23 to 30 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

- (j) **Special provisions for Central Irregular Plains wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Central Irregular Plains ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:

(1) Where designated, the subcategory of Cool Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 28 or less. If a score is 29 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(2) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 30 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 22 or less. If a score is 23 to 29 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

3) Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 25 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 16 or less. If a score is 17 to 24 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

SOURCE: Added at 17 Ok Reg 1775, effective 7/1/2000; Amended at 18 Ok Reg 3379, effective 8/13/2001; Amended at 19 Ok Reg 2524-2526, eff 7/1/2002

APPENDIX C. INDEX OF BIOLOGICAL INTEGRITY

		5	3	1	SCORE
Sample Composition	Total no. of species	See figure 1*	2.49 -1.50	<1.50	
	Shannon diversity** based upon numbers	>2.50	2 - 3	<2	
	No. of sunfish species	>3	4 - 3	<3	
	No. of species comprising 75% of sample	>5	3 - 5	<3	

	No. of intolerant species <100mi ² area >100mi ² area	>5			
	Percentage of tolerant species	See figure 3*			
Fish Condition	Percentage of lithophils	>36	18 - 36	<18	
	Percentage of DELT anomalies***	<0.1	0.1 -1.3	>1.3	
	Fish numbers (total individuals)	>200	200 - 75	<75	

*Figure 2. Number of Intolerant Species and Figure 3. Percent Tolerant Species, (Unofficial) Oklahoma Administrative Code, Title 785, Oklahoma Water Resources Board Rules, Chapter 46. Implementation of Oklahoma Water Quality Standards, p. 47, 48.

$$**d = - \sum \frac{n_i}{N} \ln \frac{n_i}{N}$$

***DELT = deformities, eroded fins, lesions, tumors